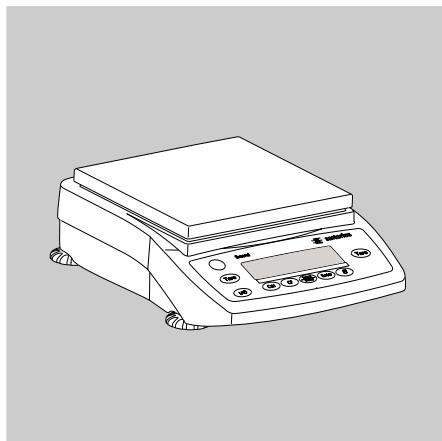
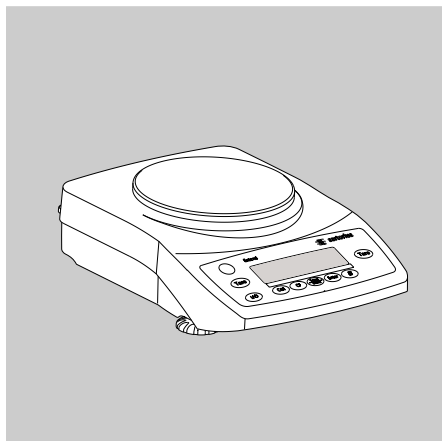
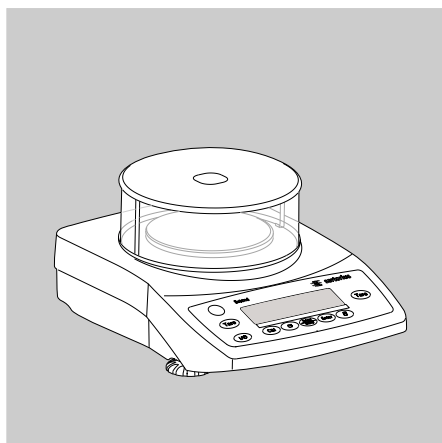
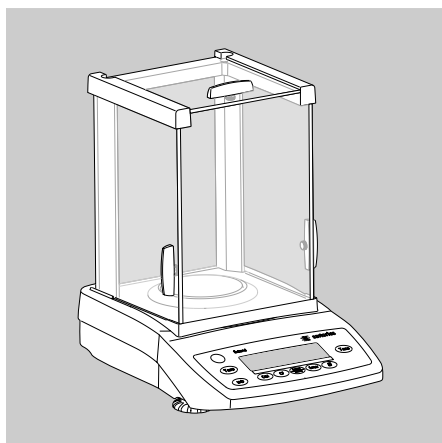


Operating Instructions

Sartorius Extend Series Sartorius Gem and Gold Extend

Electronic Analytical and Precision Balances and Precious Metal Scales



Contents

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Warnings and Safety Precautions

Safety

- To prevent damage to the equipment, please read these operating instructions carefully before using the balance/scale.



Do not use this equipment in hazardous areas.



The balance/scale may be opened only by trained service technicians.



Disconnect the balance/scale from power before connecting or disconnecting peripheral devices.



If you operate the balance/scale under ambient conditions subject to higher safety standards, you must comply with the applicable installation regulations.



Exposure to excessive electromagnetic interference can cause the readout value to change. Once the disturbance has ceased, the instrument can be used again in accordance with its intended purpose.

Make sure that no liquid enters the equipment housing; use only a slightly moistened cloth to clean the balance/scale.



Installation

Make sure the voltage rating printed on the power supply is identical to your local line voltage.

- Proceed with extreme caution when using pre-wired RS-232 connecting cables, as the pin assignments may not be compatible with Sartorius equipment. Before connecting the cable, check all pin assignments against the cabling diagrams and disconnect any lines that are assigned differently.




If there is visible damage to the equipment or power cord, disconnect the equipment from power and lock it in a secure place to ensure that it cannot be used for the time being.

- Connect only Sartorius accessories and options, as these are optimally designed for use with your Extend balance/scale. The operator shall be solely responsible for installation and testing of any modifications to Sartorius equipment, including connection of cables or equipment not supplied by Sartorius. On request, Sartorius will be happy to provide information on operating specifications (in accordance with the Standards for defined immunity to interference).
- Do not open the balance/scale housing. If the seal is broken, this will result in forfeiture of all claims under the manufacturer's warranty.
- If you have any problems with your balance/scale, contact your local Sartorius customer service center.

Symbols

The following symbols are used in these instructions:

- indicates required steps
- indicates steps required only under certain conditions
- > describes what happens after you have performed a particular step
- indicates an item in a list
-  indicates a hazard

Getting Started

Storage and Shipping Conditions

- Do not expose the balance/scale to extreme temperatures, moisture, shocks, blows or vibration.

Unpacking the Equipment

- After unpacking the equipment, please check it immediately for any external damage.
- If you detect any damage, proceed as directed in the chapter entitled “Care and Maintenance,” under “Safety Inspection.”
- Save the box and all parts of the packaging for any future transport. Disconnect all cables before packing the balance/scale for shipping.

Equipment Supplied

- Balance/scale
- Weighing pan
- Pan support (only for models with a round weighing pan)
- Gem tray (GK and GW models only)
- AC adapter

Additional equipment supplied with models ED224S, ED124S, GK1203, GK703, GK303:

- Sliding-door draft shield
- Shield ring
- Shield plate
- Dust cover

Additional equipment supplied with models ED423S-DS, ED323S-DS, ED153-DS, GK2202:

- Sliding-door draft shield

Additional equipment supplied with models ED623S(-CW), ED523S-POCE, ED423S(-CW), ED323S(-CW), ED153(-CW):

- Round glass draft shield with cover

Installation

Choose a location that is not subject to the following negative influences:

- Heat (heater or direct sunlight)
- Drafts from open windows and doors
- Excessive vibration during weighing
- Excessive moisture

Conditioning the Balance/Scale

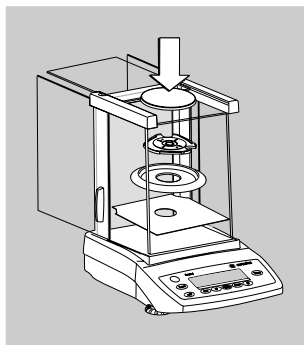
Moisture in the air can condense on cold surfaces whenever the equipment is moved to a substantially warmer place. To avoid the effects of condensation, condition the weighing instrument for 2 hours at room temperature, leaving it unplugged from AC power.

Seal on Balances/Scales Verified for Use in Legal Metrology in the EU*:

EU legislation requires that a control seal be affixed to verified balances/scales of accuracy class (II). The control seal consists of a sticker with the “Sartorius” logo. If the seal is broken, the verification becomes null and void and the balance/scale must be re-verified.

* Including the Signatories of the Agreement on the European Economic Area

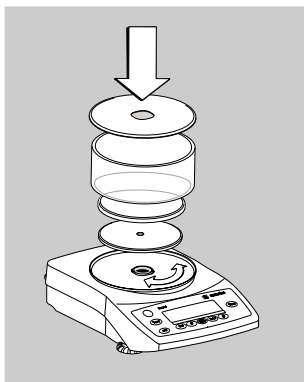
Installation



Setting Up the Balance/Scale

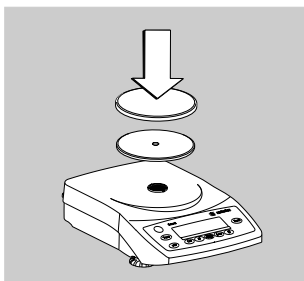
Instruments with sliding-door draft shield:

- Place components inside the chamber in the following order:
 - Shield plate
 - Shield ring (not on models ED423S-DS, ED323S-DS, ED153-DS, GK2202)
 - Pan support
 - Weighing pan
 - Gem tray (GK models only)



Instruments with a round glass draft shield:

- Position the components listed below in the order given:
 - Place the lower lid on the balance/scale with the raised edge facing upwards and turn it until it is firmly in position
 - Pan support
 - Weighing pan
 - Glass draft shield
 - Gem tray (GK models only)
 - Place the upper lid on the draft shield with the raised edge facing downwards

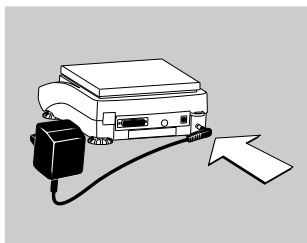


Instruments with a round weighing pan

- Position the components listed below in the order given:
 - Pan support
 - Weighing pan
 - Weighing bowl (GW models only)

Instruments with a rectangular weighing pan:

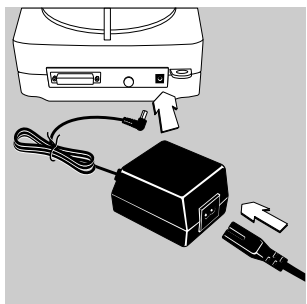
- Place the weighing pan on the balance/scale
- Weighing bowl (GW models only)



Connecting the Balance/Scale to AC Power/ Safety Precautions

Use only genuine Sartorius AC adapters. For use within Europe: part no. 6971948

- Connect the angle plug to the balance/scale
- Connect the AC adapter to the wall outlet (mains)

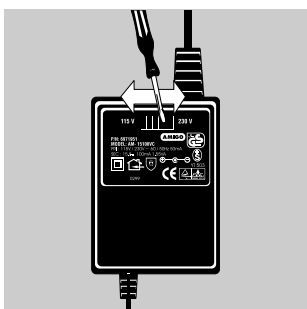


AC Adapter with Country-specific Power Cord

Some models come with separate country-specific power cords for the AC adapter. In Europe, use only genuine Sartorius AC adapter part no. 6971982.

- Connect the angle plug to the balance/scale
- Select the power cord for your area and connect it to the AC adapter
- Plug the power cord into the wall outlet (mains)

The ground terminal is connected to the balance/scale housing, which can be additionally grounded for operation.



Set the required voltage, if necessary.

If you need to set the voltage, use one of the following genuine Sartorius adapters:

- TNG8 adapter, part no. 6971951 (universal)
or
- TNG8 adapter, part no. 6971952 (for the UK)
- Move the switch to set the voltage to 230 V or 115 V

NOTE: This equipment has been tested and found to comply with the limits pursuant to part 15 of FCC Rules.

These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference to radio communications.

For information on the specific limits and class of this equipment, please refer to the Declaration of Conformity. Depending on the particular class, you are either required or requested to correct the interference.

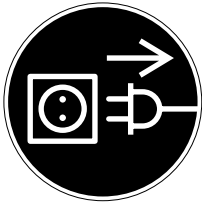
If you have a Class A digital device, you need to comply with the FCC statement as follows: "Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense."

If you have a Class B digital device, please read and follow the FCC information given below:

"However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

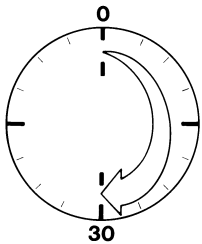
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help."

Before you operate this equipment, check which FCC class (Class A or Class B) it has according to the Declaration of Conformity included. Be sure to observe the information of this Declaration



Connecting Electronic Peripheral Devices

- Make sure to unplug the balance/scale from AC power before you connect or disconnect a peripheral device (printer or computer) to or from the interface port.



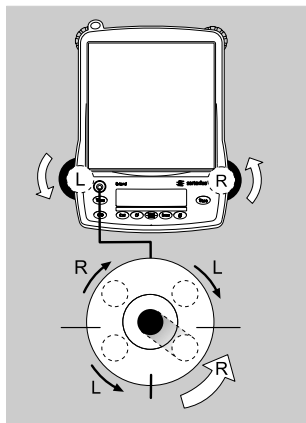
Warmup Time

To ensure accurate results, the balance/scale must warm up for 30 minutes before operation. Only after this time will the instrument have reached the required operating temperature.

Using Verified Balances/Scales in Legal Metrology in the EU*:

- Make sure to allow the equipment to warm up for at least 24 hours after initial connection to AC power or after a relatively long power outage.

* Including the Signatories of the Agreement on the European Economic Area



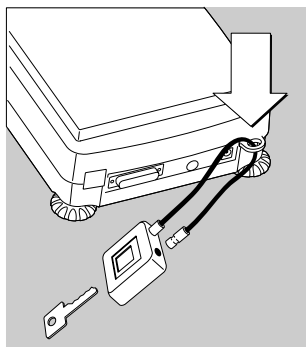
Leveling the Balance/Scale

Purpose:

- To compensate for unevenness at the place of installation

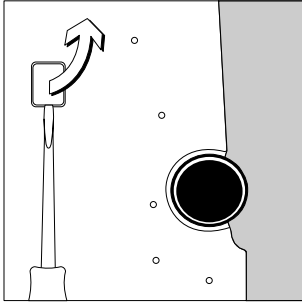
Always level the balance/scale again any time after it has been moved to a different location. Only the 2 front feet are adjusted to level the balance/scale.

- Retract the two rear feet (only on models with a rectangular weighing pan).
 - Turn the 2 front feet as shown in the diagram until the air bubble is centered within the circle of the level indicator.
- > In most cases this will require several adjustment steps.
- On models with a rectangular weighing pan: extend the 2 rear feet until they touch the surface on which the balance/scale rests.



Anti-theft Locking Device

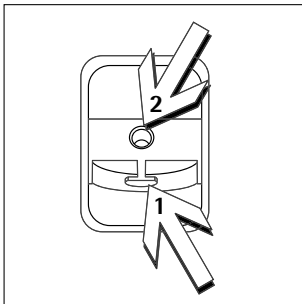
- To secure the balance/scale at the place of installation, fasten a chain or a lock to the lug located on the rear panel of the balance/scale.



Below-Balance/Scale Weighing

A port for a below-balance/scale weighing hanger is located on the bottom of the balance/scale.

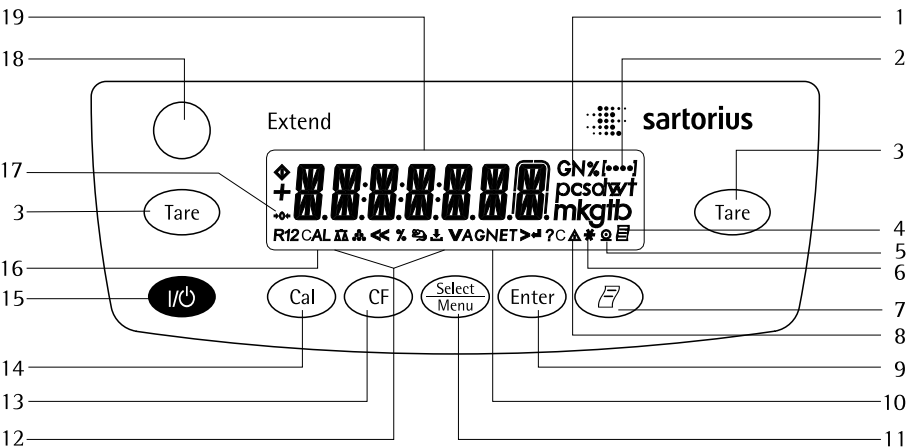
- Below-balance/scale weighing is not permitted in legal metrology.
- Open cover plate on the bottom of the balance/scale.
Important: set the balance/scale on its side to access the cover plate. DO NOT turn the balance/scale upside-down!



- Using the built-in hook **1**: Attach the sample (e.g., using a suspension wire) to the hanger.
- Bore hole **2** (not on models ED153., ED822., ED8201, ED5201, or ED2201): Carefully fasten the special hanger, or order a hanger directly from Sartorius.
- Install a shield for protection against drafts if necessary.

Operation

Overview of Display and Operating Elements





Position	Designation	Position	Designation
1	Weight units	13	Delete (Clear Function) This key is generally used to cancel functions:
2	Menu level indicator		– Quit application program
3	Taring		– Cancel calibration/adjustment routine | Exit the operating menu
4	Symbol: "GLP printing mode active"	14	Start calibration/adjustment routine
5	Symbol: "Printing mode active"	15	On/off
6	Symbol: "Application program active"	16	Symbol: Calibration/adjustment function
7	Data output: Press this key to send readout values to the built-in data interface.	17	Symbols for zero range (verified models only)
8	Calculated-value indicator (i.e., not a weight value)	18	Level indicator
9	Start an application program	19	Weight value displayed in selected weight unit
10	Symbol: Gross or net value		Symbols:
11	Select an application program | Open the operating menu	<<	Save settings and exit the operating menu
12	Symbols for active application (ΔΔ, ΔΔ, %, etc., ↓, A, C)	<	One menu level higher
		V	Scroll through menu items
		>	Next item on current menu level
		↵	Select a parameter setting

Basic Weighing Function


Features

- Taring the balance/scale
- Printing weights

Preparation


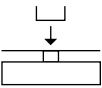

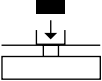

- Switch on the balance/scale: Press 
- Tare the balance/scale, if necessary:
Press 
- If necessary, change the configuration settings:
see the chapter entitled “Configuration”
- If desired, load the factory settings:
see the chapter entitled “Configuration”

Additional Functions

- Switching off the balance/scale:
Press 

Example

Simple Weighing

Step	Key (or instruction)	Display/Printout
1. Switch on the balance/scale Self-test is performed, followed by automatic initial tare function.		0.0 g
2. Place container on weighing pan (in this example: 11.5 g).		+ 11.5 g
3. Tare the balance/scale		0.0 g
4. Place sample in container (in this example: 132 g).		+ 132.0 g
5. Print weight.		N + 132.0 g

Calibration and Adjustment

Purpose

Calibration is the determination of any difference between the measured value displayed and the true weight (mass) of a sample. Adjustment is the correction of this difference, or its reduction to an allowable level within maximum permissible error limits.

Using Verified Balances/Scales as Legal Measuring Instruments in the EU*: Before using your balance/scale as a legal measuring instrument, internal calibration must be performed at the place of installation.

Features

Calibration/adjustment can be performed only when:

- there is no load on the balance/scale,
- the balance/scale is tared, and
- the internal signal is stable.

If these conditions are not met, an error message is displayed ("ERR 02 ").

The weight displayed for the sample on the balance/scale must not differ from the nominal weight by more than 2%.

You can use any of the following weight units in calibration/adjustment: *CAL.UNIT: GRAMS, KILOGR. or POUNDS*

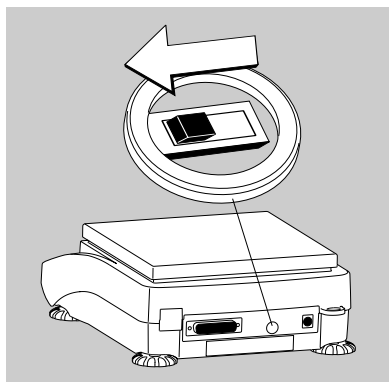
External Calibration in Verified Balances/Scales of Accuracy Class (II)

- When the balance/scale is used in legal metrology, external calibration is blocked by a seal over the menu access switch.

* Including the Signatories of the Agreement on the European Economic Area

To block calibration/adjustment:

- Select *CAL.-ADJ.: BLOCKED* in the menu and
- Close the menu access switch on the back of the balance/scale



For details on generating an ISO/GLP-compliant printout of calibration/adjustment results, see page 41.

Following calibration/adjustment, the application program is cleared.

Internal Calibration/Adjustment

In the operating menu, select *CAL.-ADJ.: CAL.INT.* before beginning. The built-in motorized calibration weight is applied and removed automatically for internal calibration.

- Select calibration/adjustment:
Press **Cal**
 - > The built-in weight is applied automatically
 - > The balance/scale is adjusted
 - > The built-in calibration weight is removed.

Internal Calibration/Adjustment



(Only on Models with a Built-in Motorized Calibration Weight)

Models with a resolution of 0.1 mg, ED...-CW, GK..., GW... models, and verified models (with the ...CE suffix) are equipped with a built-in motorized calibration weight as a standard feature

Set the following parameters:




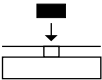
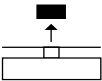
SETUP: BAL.SCAL. : CAL.-ADJ.: CAL.INT. (menu code 1.1.9.4)

The built-in motorized calibration weight is applied and removed automatically for internal calibration.

Step	Key (or instruction)	Display
1. Tare the balance/scale		0.0 g
2. Start calibration		CAL.INT.
The built-in weight is applied automatically		CAL.RUN.
3. Calibration/adjustment executed		CAL.END
4. The built-in weight is removed		0.0 g

External Calibration







Parameters (changes in factory settings):
SETUP: BAL.SCAL.: CAL.-ADJ.: CAL.EXT. (menu code 1.1.9.1)
The required calibration weight is configured at the factory (see "Specifications")

Step	Key (or instruction)	Display
1. Tare the balance/scale		0.0 g
2. Start calibration. Once you store the zero point the required calibration weight is prompted (flashing display)		CAL.EXT.  - 5000.0 g
3. Apply the prompted calibration weight (in this example: 5000 g) Weight too light: a minus sign “-” is shown Weight too heavy: a plus sign “+” is shown The display stops flashing as soon as the weight value is within the defined limit.		5000.0 g
4. Calibration/adjustment executed; then the calibration weight is displayed		CAL.END + 5000.0 g
5. Remove the calibration weight		0.0 g

Configuration (Operating Menu)

You can configure the balance/scale; i.e., adapt it to individual requirements.

Functions of the Keys during Configuration


Symbol	Key	Function
V		Scroll through menu items
>		One menu level lower
↵		Confirm menu item
	 (press and hold)	Save settings and exit menu from any position
<<		Save settings and exit menu
<		One menu level higher
[...]		Indicates menu level

Menu Navigation

Example: Setting the Language

Step	Key (or instruction)	Display
1. Open the menu: In weighing mode: first menu item is shown	Select Menu (hold)	APPLIC.
2. Scroll upward within the menu level; after the last menu code, the first code is displayed again	Repeatedly: Select Menu	INPUT ... LANGUAG.
3. Select menu level (scrolls to the right)	Enter	ENGLISH °
5. Change setting: Scroll until the desired setting is shown	Select Menu	ESPAÑOL
6. Confirm the menu code; “o” indicates the active setting	Enter	ESPAÑOL °
7. Return to the next higher menu level (from the fourth level) ○ Set other menu items as desired	CF Select Menu , Enter	LENGUA
8. Save settings and exit menu or ○ Exit menu without saving changes	Repeatedly: CF I/O	 0.0 g
> Restart your application		0.0 g

Parameter Settings: Menu

Level 1 [●]	Level 2 [●●]	Level 3 [●●●]	Menu code
SETUP	BAL.SCAL. Balance/scale parameters	AMBIENT Ambient conditions	1. 1. 1.
		APP.FILT. Application filter	1. 1. 2.
		STAB.RNG. Stability range	1. 1. 3.
		TARING Taring	1. 1. 5.
		AUTOZER. Auto zero	1. 1. 6.
		WT.UNIT Basic weight unit	1. 1. 7.
		DISPLAY Display accuracy	1. 1. 8.
		CAL./ADJ. Function of the  key	1. 1. 9.
		CAL.UNIT Weight unit for calibration	1. 1. 11.
		BAUD Baud rate	1. 5. 1.
	INTERF. Interface	PARITY Parity	1. 5. 2.
		STOPBIT Number of stop bits	1. 5. 3.
		HANDBSHK Handshake mode	1. 5. 4.
		DATABIT Number of data bits	1. 5. 5.
		DAT.REC. Output: SBI (ASCII) or printout	1. 5. 6.
	PRNT.OUT Settings for print function	PRINT (manual/automatic)	1. 6. 1.
		STOPAUT. Stop automatic printing	1. 6. 2.
		AUT.CYCL. Time-dependent autom. printing	1. 6. 3.
		TAR./PRT. Tare bal./scale after ind. print	1. 6. 4.
		PRT.INIT. Printout of appl. parameters	1. 6. 5.
		FORMAT Line format for printout	1. 6. 6.
		GLP ISO/GLP-compliant printout	1. 6. 7.
		TIME: 12/24 h	1. 6. 8.
		DATE: Format	1. 6. 9.
	EXTRAS Additional functions	MENU	1. 8. 1.
		SIGNAL Acoustic signal (beep)	1. 8. 2.
		KEYS Keypad	1. 8. 3.
		EXT.KEY External switch function	1. 8. 4.
		ONMODE Power-on mode	1. 8. 5.
	RESET	BACKLIT Display backlighting	1. 8. 6.
		MENU Factory settings	1. 9. 1.
APPLIC. Application programs	WEIGH		2. 1.
	UNIT Toggle wt. unit	DISP.DIG. Display accuracy	2. 2. 2.
	COUNT. Counting	RESOLUT. Resolution	2. 3. 1.
		REF.UPDT. Autom. ref. sample updating	2. 3. 2.
	PERCENT Weighing in percent	DEC.PLCS Decimal places	2. 4. 1.
	NET-TOT Net-total formulation	COMP.PRT. Printout of components	2. 5. 1.
	TOTAL Totalizing	COMP.PRT. Printout of components	2. 6. 1.
	ANIMALW. Animal weighing	ACTIVITY. Animal activity	2. 7. 1.
		START	2. 7. 2.
CALC. Calculation		METHOD (operator)	2. 8. 1.
		DEC.PLCS Decimal places	2. 8. 2.
	DENSITY Density determination	DEC.PLCS Decimal places	2. 9. 1.
INPUT Input	IDNO.	ID input; max. 7 characters	3. 1.
INFO Information	VERSION, SER.NO., MODEL	Display software ver., serial no., model	4. 1./2./3.
LANGUAG.	ENGLISH (factory setting)		5. 1.
	DEUTSCH German		5. 2.
	FRANC. French		5. 3.
	ITAL. Italian		5. 4.
	ESPAÑOL Spanish		5. 5.
	CODES Menu shows codes (not texts)		5. 6.


Parameter Settings: Overview







o = Factory setting √ = User-defined setting

Level 1 [•]	Level 2 [••]	Level 3 [•••]	Level 4 [••••]	Menu code
SETUP	BAL.SCAL.	AMBIENT	V.STABLE Very stable	1. 1. 1. 1
	Balance/scale parameters	Ambient conditions (Filter adaptation)	o STABLE	1. 1. 1. 2
			UNSTABL	1. 1. 1. 3
			V.UNSTBL. Very unstable	1. 1. 1. 4
		APP.FILT.	o FINALRD. Final readout mode	1. 1. 2. 1
		Application filter	FILLING Filling mode	1. 1. 2. 2
		STAB.RNG.	1/4 DIG. (digit)	1. 1. 3. 1
		Stability range	1/2 DIG.	1. 1. 3. 2
			1 - DIGIT	1. 1. 3. 3
			o 2 - DIGIT	1. 1. 3. 4
			4 - DIGIT	1. 1. 3. 5
			8 - DIGIT	1. 1. 3. 6
		TARING ¹⁾	W/O STBW/o stability)	1. 1. 5. 1
		Taring	o W/ STAB After stability)	1. 1. 5. 2
		AUTOZER.	OFF	1. 1. 6. 1
		Auto zero	o ON	1. 1. 6. 2
		WT.UNIT	For list of units, see	1. 1. 7. 1
		Basic weight through unit	"Toggling between Weight Units"	1. 1. 7. 23
		DISP.DIG.	o ALL	1. 1. 8. 1
		Display accuracy	MINUS ¹⁾	1. 1. 8. 2
			DIVIS. 1 1 interval ¹⁾	1. 1. 8. 6
		CAL./ADJ.	o CAL.EXT. External cal./adj.	1. 1. 9. 1
		Function of the	CAL.INT. Internal cal./adj. ²⁾	1. 1. 9. 2
		Cal key	BLOCKED Cal key blocked	1. 1. 3. 3
		CAL.UNIT. Unit ¹⁾	o GRAMS	1. 1.11. 1
		for calibration	KILOGR. Kilograms	1. 1.11. 2
		weight	POUNDS	1. 1.11. 3

¹⁾ Setting cannot be changed on verified balances/scales

²⁾ Only on models with built-in motorized calibration weight

Level 1 [•]	Level 2 [••]	Level 3 [•••]	Level 4 [••••]	Menu code
SETUP	INTERF. Interface	BAUD rate	600 o 1200 2400 4800 9600 19200	1. 5. 1. 3 1. 5. 1. 4 1. 5. 1. 5 1. 5. 1. 6 1. 5. 1. 7 1. 5. 1. 8
		PARITY Parity	o ODD EVEN NONE	1. 5. 2. 3 1. 5. 2. 4 1. 5. 2. 5
		STOPBIT No. of stop bits	o 1 BIT 2 BITS	1. 5. 3. 1 1. 5. 3. 2
		HANDSHK. Handshake mode	SOFTWARE o HARDWARE NONE	1. 5. 4. 1 1. 5. 4. 2 1. 5. 4. 3
		DATABIT No. of data bits	o 7 BITS 8 BITS	1. 5. 5. 1 1. 5. 5. 2
		DAT.REC. Com- munication mode	SBI (ASCII) o PRINTER (GLP-printout)	1. 5. 6. 1 1. 5. 6. 2
	PRNT.OUT Printing fct.	PRINT (manual/ automatic)	MAN. W/O W/o stability o MAN.WITH W/ stability AUT. W/O Autom. w/o stability AUT.WITH. Autom. w/ stability	1. 6. 1. 1 1. 6. 1. 2 1. 6. 1. 3 1. 6. 1. 4
		STOPAUT. Stop automatic printing	o OFF Not possible ON Use print key 	1. 6. 2. 1 1. 6. 2. 2
		AUT.CYCL. Time-dependent autom. printing	o EACH/WAL (1 display update) AFTER 2 (2 display updates)	1. 6. 3. 1 1. 6. 3. 2
		TAR./PRT. Tare the bal./scale after individual printout	o OFF ON	1. 6. 4. 1 1. 6. 4. 2

Level 1 [•]	Level 2 [••]	Level 3 [•••]	Level 4 [••••]	Menu code
SETUP	PRNT.OUT Printing fct.	PRT.INIT.	OFF	1. 6. 5. 1
		Printing appli- cation parameters	o ALL All parameters	1. 6. 5. 2
			MAINPAR. Main parameters	1. 6. 5. 2
		FORMAT Line	16 CHAR. 16 characters (w/o ID)	1. 6. 6. 1
		format for printout	o 22 CHAR. 22 characters (w/ ID)	1. 6. 6. 2
		GLP Printout	o OFF	1. 6. 7. 1
		as ISO/GLP- compliant	CAL.-ADJ. Only for calib./adj.	1. 6. 7. 2
		TIME	ALWAYS All printouts	1. 6. 7. 3
			24H 24-hour format	1. 6. 8. 1
			12H 12-hour format "AM/PM"	1. 6. 8. 2
		DATE	DD.MM.YY Day/month/year	1. 6. 9. 1
			MM.DD.YY Month/day/year	1. 6. 9. 2
	EXTRAS Additional functions	MENU ¹⁾	o CANEDIT Can change settings	1. 8. 1. 1
			RD.ONLY Read only	1. 8. 1. 2
		SIGNAL	OFF	1. 8. 2. 1
		Acoustic signal	o ON	1. 8. 2. 2
		KEYS	o FREE	1. 8. 3. 1
		Keypad	LOCKED	1. 8. 3. 2
		EXT.KEY	o PRINT 	1. 8. 4. 1
		Function of the external switch	Z/TARE 	1. 8. 4. 2
			CAL. 	1. 8. 4. 3
			SELECT 	1. 8. 4. 4
			CF 	1. 8. 4. 5
			ENTER 	1. 8. 4. 6
		ON MODE	o OFF / ON Off/on/standby	1. 8. 5. 1
		Power-on mode	STANDBY On/standby	1. 8. 5. 2
			AUTO ON Auto on	1. 8. 5. 3
		BACKLIT	OFF	1. 8. 6. 1
		Display backlighting	o ON	1. 8. 6. 2
	RESET Reset menu	MENU	YES Restore fcty. settings	1. 9. 1. 1
		Factory settings	o NO Do not restore settings	1. 9. 1. 2

¹⁾ Setting cannot be changed on verified balances/scales


Level 1 [●]	Level 2 [●●]	Level 3 [●●●]	Level 4 [●●●●]	Menu code
APPLIC. Applic. programs	WEIGH			2. 1.
	UNIT	DISP.DIG.	o ALL	2. 2. 2. 1
	Toggle units	Display accuracy	MINUS 1 ¹⁾	2. 2. 2. 2
			DIVIS. 1 1 interval	2. 2. 2. 6
	COUNTING	RESOLUT.	o DISP.ACC. Display accuracy	2. 3. 1. 1
		Resolution	10-FOLD 10 times > disp.	2. 3. 1. 2
		REF.UPDT.	o OFF	2. 3. 2. 1
		Autom. reference updating	AUTO	2. 3. 2. 2
	PERCENT	DEC.PLCS	NONE No dec. places	2. 4. 1. 1
	Weighing in percent	Decimal places	o 1 DEC.PL. 1 decimal place	2. 4. 1. 2
			2 DEC.PL. 2 decimal places	2. 4. 1. 3
			3 DEC.PL. 3 decimal places	2. 4. 1. 4
	NET-TOT	COMP.PRT.	OFF	2. 5. 1. 1
	Net-total	Component printout	o ON	2. 5. 1. 2
	TOTAL	COMP.PRT.	OFF	2. 6. 1. 1
	Totalizing	Component printout	o ON	2. 6. 1. 2
	ANIMALW.	ACTIVITY.	CALM Fluct.: 2% of test obj.)	2. 7. 1. 1
	Animal weighing	Animal activity	o ACTIVE (fluct.: 5% of test obj.)	2. 7. 1. 2
			V.ACTIVE (fluct.: 20% of test obj.)	2. 7. 1. 3
		START	MANUAL	2. 7. 2. 1
			o AUTO. Automatic	2. 7. 2. 2
	CALC.	METHOD	o MUL. Multiplier	2. 8. 1. 1
	Calculation	(operator)	DIV. Divisor	2. 8. 1. 2
		DEC.PLCS	NONE No dec. places	2. 8. 2. 1
		Decimal places	o 1 DEC.PL. 1 decimal place	2. 8. 2. 2
			2 DEC.PL. 2 decimal places	2. 8. 2. 3
			3 DEC.PL. 3 decimal places	2. 8. 2. 4
	DENSITY	DEC.PLCS	NONE No dec. places	2. 9. 1. 1
	Density determination	Decimal places	o 1 DEC.PL. 1 decimal place	2. 9. 1. 2

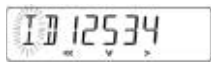


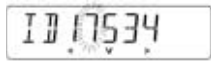


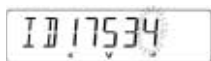


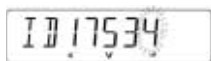



¹⁾ Setting cannot be changed on verified balances/scales

ID Number for ISO/GLP-compliant Data Record



Level 1 [•]	Level 2 [••]	Level 3 [•••]	Menu code
INPUT	ID NO.	ID input; max. 7 characters Permitted characters: 0 to 9; A to Z; dash/hyphen; space	3. 1.

Function of the Keys when Entering ID Numbers

 key: Press and hold to repeat

Display	Key	Display symbol	Function
	First position:		
		>	Go to next position
		V	Select current position
		<<	Exit without saving changes
	Middle positions:		
		V	Select current position
		>	Go to next position
		<	Go to previous position
	Last position:		
		V	Select current position
		<	Go to previous position
		↵	Store and exit

Device Information


Level 1 [•]	Level 2 [••]	Level 3 [•••]	Example	Menu code
INFO Information	VERSION	— Show software version	REL.32.02	4. 1.
	SER. NO.	— Show serial number (To toggle focus between upper and lower display sections, press )	1080 1234	4. 2.
	MODEL	— Show model designation (to change focus from upper to middle to lower display section and back, press )	E162025	4. 3.

Display of Menu Items: Text or Codes

LANGUAG.	ENGLISH	(factory setting)	5. 1.
	DEUTSCH	German	5. 2.
	FRANC.	French	5. 3.
	ITAL.	Italian	5. 4.
	ESPAÑOL	Spanish	5. 5.
	CODES	Menu shows codes (not texts)	5. 6.

Application Programs

Counting

Display symbol: 

Purpose


With the Counting program you can determine the number of parts that each have approximately equal weight. To do this, a known number of parts (the reference sample quantity) is weighed first, and the individual piece weight (reference weight) is calculated from this result. Thus the number of parts subsequently placed on the balance/scale can be determined from their weight.

Changing the Reference Sample Quantity


Activate function:

Press the  key

Select the desired reference sample quantity (1 to 100):

In increments of 1: Press the  key briefly

In increments of 10:

Press and hold the  key.

The quantity is stored in battery-backed memory.

Reference Sample Updating

Automatic reference sample updating optimizes the counting accuracy. You can activate or deactivate this function in the menu.

Automatic reference sample updating is performed when the requirements, including the specified stability criterion, have been met.

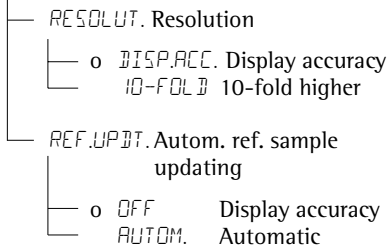
The abbreviation *OPT*, for “optimizing”, is displayed briefly with the new reference quantity.

Preparation

- Select the Counting application in the menu:
see “Configuration.”
- Set the following parameters:

APPLIC. Application program

COUNT.



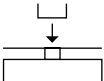

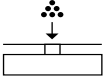




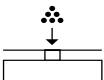


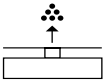

o = Factory setting

Printout: Counting

nRef	+	10	:	Reference sample quantity
wRef	+	21.14 g	:	Reference weight
Qnt	+	500 pcs	:	Calculated quantity

Example: Counting parts of equal weight

Parameter settings: *APPLIC.: COUNT.* (menu code 2. 3.)

Step	Key (or instruction)	Display/Data output
1. Place empty container on the balance/scale		+ 22.6 g
2. Tare the balance/scale		0.0 g
3. Add reference sample quantity to container (in this example: 20 pcs)		
4. Changing the reference sample quantity:		REF 10 pcs
5. Select reference sample quantity: In increments of 1 (1, 2, 3, etc. to 100) In increments of 10 (10, 20, etc. to 100)	Repeatedly:  Press briefly  press and hold	REF 20 pcs
6. Confirm selected reference sample quantity and start application The current reference weight remains stored until a new reference is set or the power supply is interrupted		+ 20 pcs * nRef 20 pcs wRef 1.07 g
7. Add desired number of pieces		+ 500 pcs
8. If desired, print quantity		Qnt + 500 pcs
9. Toggle display between mean piece weight, weight, quantity	Repeatedly: 	1.07 g Δ* + 535.0 g * + 500 pcs *
10. Unload the balance/scale		- 2 pcs *
11. Repeat as needed, starting from Step 7		
12. Delete reference value		0.0 g

Weighing in Percent


Display symbol: %

Purpose


This application program allows you to obtain weight readouts in percent which are in proportion to a reference weight.


Changing the Reference Percentage

Activate function:

Press the  key

Select the desired reference (1 to 100):

In increments of 1: Press the  key briefly

In increments of 10: Press and hold the  key.

The percentage is stored in battery-backed memory.

Preparation

- Select the Weighing in percent application in the menu: see “Configuration.”
- Set the following parameters:

APPLIC. Application program

└─ PERCENT Weighing in percent

└─ DEC.PLCS. Decimal places



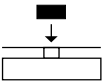

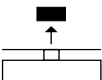
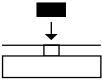




- └─ NONE No decimal places
- └─ 0 1 DEC.PL. 1 decimal place
- └─ 2 DEC.PL. 2 decimal places
- └─ 3 DEC.PL. 3 decimal places

0 = Factory setting

Printout: Weighing in percent

pRef	100	:	Reference percentage
Wxx%	111.6 g	:	Reference weight net xx% for selected reference percentage
Prc	+ 94.9 pcs	:	Calculated reference percentage

Example: Determining residual weight in percentParameter settings: *APPLIC.: PERCENT* (menu code 2. 4.)Reference percentage: *REF 100%*

Step	Key (or instruction)	Display/Data output
1. Tare the balance/scale		0.0 g
2. Information: Enter reference percentage (Changing the reference: see the previous page)		REF 100 %
3. Place sample equal to 100% on the balance/scale (in this example: 111.6 g)		
4. Initialize the balance/scale The current reference weight remains stored until a new reference is set or the power supply is interrupted		+ 100.0 % * pRef 100 % Wxx% 111.6 g
5. Remove sample (e.g., for drying)		
6. Place unknown weight on balance/scale (in this example: 322.5 g)		+ 94.9 % *
7. If desired, print percentage		Prc + 94.9 %
8. Toggle display between weight and percentage	Repeatedly: 	+ 105.9 g * + 94.9 % *
9. Clear display of residual weight and reference percentage		+ 105.9 g
10. If desired, print net residual weight		N + 105.9 g

Calculation

Display symbol: C

Purpose


With this application program you can calculate weight value using a multiplier or divisor. This can be used, for example, to determine the weight per unit area, or “gsm” weight (grams per square meter), of paper.

Setting the Factor or Divisor


Activate function:

Press the  key

Select a number of up to 7 digits and, if needed, one decimal point (0.000001 to 9999999);

In increments of 1: Press the  key briefly

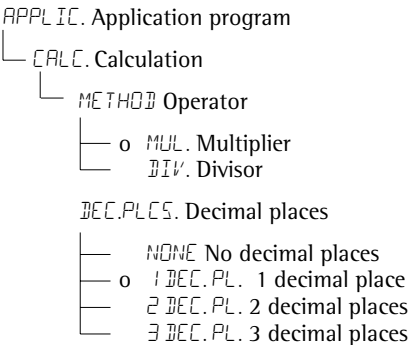
To increase the value without pressing repeatedly:

Press and hold the  key.

The selected operator is stored in battery-backed memory.

Preparation

- Select the Calculation application in the menu:
see “Configuration.”
- Set the following parameters:



o = Factory setting

Printout: Calculation









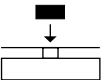


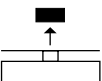
Mu L	+	1.2634	: Multiplier
Div	+	0.6237	: Divisor
Res	+	79.7	o : Result

Example:


Calculating the weight per unit area of paper: An A4 sheet of paper is used in this example, with surface dimensions of $0.210 \text{ m} \times 0.297 \text{ m} = 0.06237 \text{ m}^2$. To determine the weight per unit area, the total weight is divided by the surface.

Parameter settings:

APPLIC.: CALC.: METHOD: DIV. (menu code 2. 8. 1. 2)

Step	Key (or instruction)	Display/Data output
1. Tare the balance/scale		0.00 g
2. Activate divisor input		-----0.
3. Set the divisor (in this example:0.06237): Position the decimal point, Enter numerals	 , 5x  , 2x  , Repeatedly or press and hold;  ,  , etc.	---.00000 ---.06000 ---.06237
4. Store the divisor and initialize the balance/scale The current divisor remains stored in battery-backed memory until the setting is changed		+ 0.0 o Div 0.6237
5. Weight per unit area: Place an A4 sheet of paper on the balance/scale		+ 79.7 o *
6. If desired, print result		Res + 79.7 o
7. Toggle display between weight and calculated value	Repeatedly: 	+ 4.97 g * + 79.7 o *
8. Unload the balance/scale		+ 0.0 o *
9. Repeat as needed, starting from Step 5		

Animal Weighing/Averaging

Display symbol: 

Purpose


Use this program to determine the weights of unstable samples (e.g., live animals) or to determine weights under unstable ambient conditions. With this program, the balance/scale calculates the weight as the average of a defined number of individual weighing operations (also referred to as “subweighing operations”).


Changing the Number of Subweighing Operations

Activate function:

Press the  key

Select the desired number of measurement (1 to 100):

In increments of 1: Press the  key briefly

In increments of 10: Press and hold the  key.

The selected number of measurements is stored in battery-backed memory.

Preparation

- Select the Animal weighing application in the menu:
see “Configuration.”
- Set the following parameters:

APPLIC. Application program

└─ ANIMALW. Animal weighing

└─ ACTIVITY. Animal activity

└─ CALM Stable readout

└─ o ACTIVE Unstable

└─ V.ACTIVE Very unstable readout

START

└─ MANUAL

└─ o AUTOM. Automatic

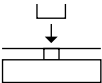





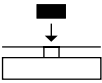
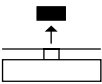
o = Factory setting

Printout: Animal weighing

mDef	20	: Number of sub-weighing operations
x-Net +	410.1 g	: Calculated average


Example: Determining animal weight with automatic start and 20 subweighing operations (measurements)

Parameter settings: *APPLIC.: ANIMALW.* (menu code 2. 7.)

Step	Key (or instruction)	Display/Data output
1. Place animal weighing bowl on the balance/scale		22.6 g
2. Tare the balance/scale		0.0 g
3. Change the number of subweighing operations:		REF 30
4. Set number of measurements: In increments of 1 (1, 2, 3, etc. to 100) In increments of 10 (10, 20, etc. to 100)	Repeatedly: Press briefly   press and hold	REF 20
5. Confirm number of measurements and start automatic animal weighing The number of measurements remains stored in battery-backed memory until the setting is changed		+ 0.0 g *
6. Place first animal in bowl. The balance/scale delays the start of measurements until the difference between 2 measurements meets the criterion		888 20 19 ... 1
7. Read off the result The result is displayed with the “*” symbol (= calculated value) and remains displayed until the sample (animal) is removed from the load plate (bowl)		+ 410.1 g Δ* mDef 20 x-Net + 410.1 g
8. Unload the balance/scale		+ 0.0 g *
9. Weigh next animal (if des.)		

Next weighing series begins automatically



Net-total Formulation

Display symbol: 

Purpose

With this application program you can weigh in different components up to a defined total. You can print out both the total weight and the individual weights of the components.

Features

- Weigh up to 99 components from “0” to a defined total component weight.
- Store component weights (“Store xx comp.”), with
 - display zeroed automatically after value is stored, and
 - automatic printout
- Clear component memory following cancellation of the weighing sequence (by pressing ) and printout of the total weight.
- Toggling between component weight and total weight by pressing and holding  (< 2 sec).
- Printout of the total of the individual component weights (**T-Comp**)

Preparation

- Select the Net-total application in the menu:
see “Configuration.”

- Set the following parameters:

APPLIC. Application program

└ *NET-TOTL.* Net-total formulation

└ *COMP.PRT.* Printout of components

└ OFF
└ 0 ON

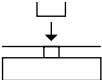

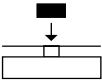

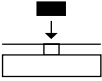



0 = Factory setting

Printout: Net-total formulation


Comp 2+ 278.1 g	: Second component
T-Comp+ 2117.5 g	: Sum of components

Example: Counting parts into a container

Parameter settings:
APPLIC.: NET-TOT (menu code 2. 5.)

Step	Key (or instruction)	Display/Data output
1. Place empty container on the balance/scale.		65.0 g
2. Tare the balance/scale		0.0 g
3. Add first component		+ 120.5 g
4. Store component data		+ 0.0 g * NET Comp 1+ 120.5 g
5. Add next component		+ 70.5 g * NET
6. Store component data		+ 0.0 g * NET Comp 2+ 70.5 g
7. Weigh in further components as desired	Repeat steps 5 and 6	
8. Fill to desired final value view the current total weight value:		+ 191.0 g *
9. Print total weight and clear the component memory		+ 2117.5 g T-Comp+ 2117.5 g



Totalizing

Display symbol: 

Purpose

With this application program you can add values from successive, mutually independent weight values to a total that exceeds the capacity of the balance/scale.

Features

- Totalizing memory for up to 99 values
- Store component weights ("Store xx comp."), with automatic printout
- Toggle display between the current individual weight value and the value in totalizing memory by pressing 
- Printout of the total of the individual component weights (**S-Comp**)
- To close the application program and print the total weight: press 

Preparation

- Select the Totalizing application in the menu:
see "Configuration."
- Set the following parameters:

APPLIC. Application program

└ TOTAL Totalizing

└└ COMP.PRT. Printout of components

└└└ OFF

└└└ 0 ON

0 = Factory setting


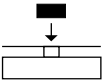

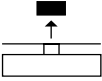
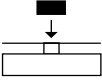



Printout: Totalizing

Comp 2+	278.1 g	: Second component
S-Comp+	2117.5 g	: Totalizing memory

Example: Totalizing weight values

Parameter settings:

APPLIC.: TOTAL; COMP.PRT: ON (menu code 2. 6. 1. 2)

Step	Key (or instruction)	Display/Data output
1. Tare the balance/scale		0.0 g
2. Place sample balance/scale (in this example: 380 g)		+ 380.0 g
3. Store value in memory		+ 380.0 g * Comp 1+ 380.0 g
4. Remove sample		+ 0.0 g *
5. Place the next sample on the balance/scale (in this example, 575 g)		+ 575.0 g *
6. Store value in memory		+ 955.0 g * + 575.0 g * Comp 2+ 575.0 g
7. View the value in totalizing memory		+ 955.0 g Δ*
8. Weigh in further components as desired	Repeat steps 5 and 6	
9. Print total weight and clear the totalizing memory		0.0 g S-Comp+ 2117.5 g

Mass Unit Conversion

Purpose









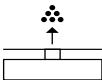

With this application program you can change the weight value displayed from the basic weight unit to any of 4 application weight units (see table on next page).

Features

- Set the basic unit and display accuracy in the Setup menu: see “Configuration.”
- Set the application weight units and display accuracies in the Application menu.
- These settings are stored in battery-backed memory.
- The basic unit is active when the balance/scale is powered up.

Example: Change display from the basic unit (in this example, grams [g]) to pounds [lb] and then to Troy ounces [ozt].

Set the following parameters: *APPLIC.: UNIT* (code 2. 2.)

Step	Key (or instruction)	Display/Data output
1. Begin selection of an application weight unit		NONE 0
2. Select an application unit; in this example, pounds (see table on next page)	Repeatedly: 	POUNDS
3. Confirm the weight unit (pounds)		POUNDS 0
4. Select the next application weight unit; in this example: Troy ounces (see table on next page)	 , Repeatedly: 	NONE 0 TROY OZ.
5. Confirm weight unit (Troy ounces)		TROY OZ. 0
6. Select other application units if desired (max. 4 total) (otherwise, confirm NONE by pressing )		
7. Store selection		0.00 g
8. Place sample on balance/scale		+ 100.00 g
9. Change unit for weight value	Repeatedly: 	+ 0.22046 lb + 3.5275 ozt

The following weight units are available in your Extend balance/scale (in legal metrology, only units permitted by national law are available):

Menu item	Unit	Conversion factor	Display symbol
1) USERDEF. ¹⁾	Grams	1.000000000000	o
2) GRAMS (Factory setting)	Grams	1.000000000000	g
3) KILOGR.	Kilograms	0.001000000000	kg
4) CARATS	Carats	5.000000000000	o
5) POUNDS	Pounds	0.00220462260	lb
6) OUNCES	Ounces	0.03527396200	oz
7) TROY OZ.	Troy ounces	0.03215074700	ozt
8) HKTAEI.	Hong Kong tael	0.02671725000	tl
9) SING.TAEI.	Singapore tael	0.02645544638	tl
10) TWN.TAEI.	Taiwanese tael	0.02666666000	tl
11) GRAINS	Grains	15.4323583500	GN
12) PENNY.WT.	Pennyweights	0.64301493100	dwt
13) MILLIGR.	Milligrams	1000.000000000	mg
14) PT.P.LB.	Parts per pound	1.12876677120	o
15) CHN.TAEI.	Chinese tael	0.02645547175	tl
16) MOMMES	mommies	0.266700000000	m
17) AUSTRICT.	Austrian carats	5.000000000000	Kt
18) TOLA	Tola	0.08573333810	o
19) BAHT	Baht	0.06578947436	b
20) MESGHAL	Mesghal	0.217000000000	o
21) TONS	Tons	0.00000100000	t
22) LB / OZ. ²⁾	Pounds : ounces	0.03527396200	lb oz
23) NEWTON	Newton	0.00980665000	N

¹⁾ = User-defined weight unit; can be loaded in the balance/scale over an optional RS-232 or USB interface using a computer program.

²⁾ = The format for display of pounds/ounces cannot be changed: xx.yy.yy x=lb, y=oz



Some weight units may be blocked from use in legal metrology, depending on national verification laws.

Density Determination

Display symbol: $\overline{\Delta\Delta}$

Purpose




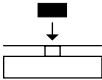

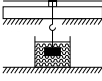



This application program lets you determine the density of solid substances using the buoyancy method. You can have results displayed with one decimal place, or no decimal places: see “Configuration.”

Note: the sample holder and suspension wire used in the example below are not included with the balance/scale.

Parameter settings:

APPLIC.: DENSITY; DEC.PLCS: 1 DEC.PL. (menu code 2. 9. 1. 2)

Example: Determining the density of a solid sample.

Step	Key (or instruction)	Display/Data output
1. Attach sample holder to suspension wire		
2. Tare the balance/scale		0.0 g
3. Start application program		
4. Confirm “AIR” display		AIR ?
5. Determine the weight of the sample in air: Place sample on the balance/scale		+ 20.0 g *
6. Store value for weight in air		
7. Remove sample from the balance/scale		WATER ?
8. Determine weight in liquid: place sample in holder		
9. Confirm “WATER” display		0.0 g *
10. Immerse sample in liquid		+ 15.0 g *
11. Store value for weight in liquid, view result, and print		+ 4.0 0 * Wa + 20.0 g WfL + 15.0 g Rho 4.0 o
12. Delete result		
13. Repeat as desired, starting from Step 3.		

ISO/GLP-compliant Printout/Record

Features

You can have device information, ID texts and date and time printed before (GLP header) and after (GLP footer) the values of a weighing series. These parameters include:

GLP header:

- Date
- Time at beginning of measurement
- Balance/scale manufacturer
- Balance/scale model
- Balance/scale serial number
- Software version number
- Identification number of the current sampling operation

GLP footer:

- Date
- Time at end of measurement
- Field for operator signature

⚠ Operating the Balance/Scale with a Verifiable ISO/GLP Printer:

- Connect a Sartorius data printer designed for ISO/GLP documentation (e.g., the YDP03-OCE printer) to the balance/scale.

Configuration

- Setting menu codes for the printout (see "Configuration"):
- ISO/GLP-compliant printout or record only for calibration/adjustment:
`SETUP: PRNT.OUT: GLP: CAL.-ADJ.`
(menu code 1. 6. 7. 2) or
ISO/GLP-compliant printout or record always on: `SETUP: PRNT.OUT: GLP: ALWAYS ON` (code 1. 6. 7. 3)
- Line format for printout: include data ID codes (22 characters; factory setting):
`SETUP: PRNT.OUT: FORMAT: 22 CHAR.`
(menu code 1. 6. 6. 2)

- Formats for time:

`SETUP: PRNT.OUT: TIME: 24 H`
(menu code 1. 6. 8. 1) or
`SETUP: PRNT.OUT: TIME: 12 H`
(menu code 1. 6. 8. 2)


- Formats for date:

`SETUP: PRNT.OUT: DATE: DD.MM.YY`
(menu code 1. 6. 9. 1) or
`SETUP: PRNT.OUT: DATE: MMM.DD.YY`
(menu code 1. 6. 9. 2)


- ⚠ No ISO/GLP-compliant record is output if any of the following settings are configured:

`SETUP: PRNT.OUT PRINT: AUT.W/O` or
`AUT.WITH` (menu code 1. 6. 1. 3, 1. 6. 1. 4,) or `FORMAT: 16 CHAR.` (menu code 1. 6. 6. 1)



Function Keys

Transfer header and first measured value: press 

- > The header is included with the first printout/data record.

To output header and reference data automatically when an application program is active: press 

Exit the application:

- 1) To send the GLP footer:
press 
- 2) Quit application program:
press  again

The ISO/GLP-compliant printout can contain the following lines:

-----	Dotted line
17-Aug-2005 10:15	Date/time (beginning of measurement)
SARTORIUS	Balance/scale manufacturer
Mod. ED8201	Model
Ser. no. 10105355	Balance/scale serial number
Ver. no. 00-32-02	Software version
ID 2690 923	ID.
-----	Dotted line
L ID	Measurement series no.
nRef 10 pcs	Counting: reference sample quantity
wRef 21.14 g	Counting: reference weight
Qnt + 567 pcs	Counting result
-----	Dotted line
17-Aug-2005 10:20	Date/time (end of measurement)
Name:	Field for operator signature
	Blank line
-----	Dotted line

ISO/GLP-compliant printout for external calibration/adjustment:

-----	Dotted line
17-Aug-2005 10:30	Date/time (beginning of measurement)
SARTORIUS	Balance/scale manufacturer
Mod. ED8201	Model
Ser. no. 10105352	Balance/scale serial number
Ver. no. 00-32-02	Software version
ID 2690 923	ID.
-----	Dotted line
Cal. Ext. Test	Calibration/adjustment mode
Set + 5000.0 g	Calibration weight
Diff. + 0.2 g	Difference determined in calibration
Cal. Ext. Complete	Confirmation of completed calibration procedure
Diff. 0.0 g	Difference from target following adjustment
-----	Dotted line
17-Aug-2005 10:32	Date/time (end of measurement)
Name:	Field for operator signature
	Blank line
-----	Dotted line

Interface Port

Purpose

Your balance/scale is equipped with an interface port for connection to a computer or other peripheral device.

You can connect a computer to change, start and/or monitor the functions of the balance/scale and the application programs.

Features

Type of interface: Serial interface

Operating mode: Full duplex

Standard: RS-232

Transmission rates:

600, 1200, 2400, 4800, 9600

and 19,200 baud

Parity: odd, even, none

Number of data bits: 7 or 8 bits

Character format:

1 start bit, 7-bit ASCII, parity,

1 or 2 stop bits

Handshake:

For 2-wire interface:

software (XON/XOFF)

For 4-wire interface:

hardware (CTS/DTR)

Data output format of the balance/scale:

16 or 22 characters

Factory Settings

Transmission rate:

1200 baud (menu code 1. 5. 1. 4)

Parity: *ODD* (1. 5. 2. 3)

Stop bits: 1 *STOP* bit (1. 5. 3. 1)

Handshake:

HANDSHK. Hardware, (1. 5. 4. 2)

Operating mode: *PRINTER* (1. 5. 6. 2)

printing: *MAN.WITH* Manual after stability (1. 6. 1. 2)

Preparation

See "Pin Assignments" and

"Pin Assignment Chart"

Identification of Non-Verified Digits

To have non-verified digits (when "e # d") automatically identified on the printout, set the following parameters: Communication: *PRINTER* (menu code 1. 5. 6. 2)
Non-verified digits are marked by square brackets [].

Data Output Format with 16 Characters

Display segments that are not activated are output as spaces.

The type of character that can be output depends on the character's position:

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+			D	D	D	D	D	D	D	*	U	U	U	CR	LF
or	–			.	.	.	.	.	.	.		*	*	*
or	*		*	*	*	*	*	*	*	*						

*: Space
D: Digit or letter
U: Unit symbol
CR: Carriage return
LF: Line feed
.: Decimal point

Special Codes

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CR	LF
or							H	i	g	h						
or							L	o	w							
or				C	a	l	.	E	x	t	.					

*: Space
Cal. Ext.: Calibration, external
High: Overload
Low: Underload

Error Codes

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				E	r	r	*	#	#	#	*	*	*	*	CR	LF
				A	P	P	.	E	R	R ¹⁾	*	*	*	*	CR	LF
				D	l	S	.	E	R	R ¹⁾	*	*	*	*	CR	LF
				P	R	T	.	E	R	R ¹⁾	*	*	*	*	CR	LF

*: Space
#: Error number

¹⁾ See “Troubleshooting Guide”

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	*	*	1	2	3	.	5	6	*	g	*	*	CR	LF
	+	*	*	1	2	3	.	5	[	6	])	g	*	*	CR	LF

Position 1:	Plus or minus sign or space
Position 2:	Space
Position 3–10:	Weight with a decimal point; leading zeros = space
Position 11:	Space
Position 12–14:	Unit symbol or space
Position 15:	Carriage return
Position 16:	Line feed

When data is output with an ID code, the 6-character code precedes the 16-character string described above. The code identifies the subsequent value.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	1	1	1	1	1	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
	*	*	*	*	*	—			*	*	*		
							*	*	*	*	*	*	*	*	*						

I:	ID code character	U:	Unit symbol ¹⁾
*:	Space	CR:	Carriage return
D:	Digit or letter	LF:	Line feed

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
N						+				1	2	3	.	5	6	*	g	*	*	CR	LF
N						+			1	2	3	.	5	[	6	)]	g	*	*	CR	LF

To have non-verified digits (when "e # d") automatically identified on the printout, set the following parameters: Communication: *PRINTER* (menu code 1. 5. 6. 2)
Non-verified digits are marked by square brackets [].

Special Codes

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	a	t	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CR	LF
											H	i	g	h							
											L	o	w								
										C	a	l	.	E	x	t	.				

*: Space

Cal. Ext.:

High:

Calibration, external

Overload

Low:

Underload

Error Codes

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	a	t	*	*	*	*	*	E	R	R	*	#	#	#	*	*	*	*	CR	LF
S	t	a	t	*	*	*	*	*	A	P	P	.	E	R	R ¹⁾	*	*	*	*	CR	LF
S	t	a	t	*	*	*	*	*	D	I	S	.	E	R	R ¹⁾	*	*	*	*	CR	LF
S	t	a	t	*	*	*	*	*	P	R	T	.	E	R	R ¹⁾	*	*	*	*	CR	LF

*: Space

###:

Error code number

¹⁾ See “Troubleshooting Guide”



Commands (Data Input Format)





You can connect a computer to your balance/scale to send commands via the balance/scale interface port for controlling balance/scale functions and applications. The commands sent are control commands and may have different formats. Control commands consist of up to 13 characters. Each character must be transmitted according to the settings configured in the operating menu for data transmission.

Format for Control Commands

Format 1:	Esc	!	CR	LF		
Format 2:	Esc	!	#	_	CR	LF

Esc: Escape (optional) CR: Carriage return
 !: Command character LF: Line feed (optional)
 _: Underline

Command character	Format 1:
!	Meaning
K	Ambient conditions: very stable
L	Ambient conditions: stable
M	Ambient conditions: unstable
N	Ambient conditions: very unstable
O	Block keys
P	 key (print, auto print; activate or block)
R	Unblock keys
S	Restart/self-test
T	 key
W	Calibration/adjustment (depending on the menu setting)
Z	Internal calibration/adjustment*

Command character	Format 2:
!#	Meaning
f0_	Function key 
f1_	Function key 
f2_	Function key 
s3_	 key
x1_	Print balance/scale model
x2_	Print weighing cell serial number
x3_	Print software version

* = only on models with built-in motorized calibration weight

Synchronization

During data communication between the balance/scale and a connected device (computer), messages consisting of ASCII characters are transmitted via the interface. For error-free data communication, the parameters for baud rate, parity, handshake mode and character format must be the same for both units.

You can set these parameters in the Setup menu so that they match those of the connected device. You can also define parameters in the balance/scale to make data output dependent on various conditions. The conditions that can be configured are listed in the descriptions of the application programs.

If you do not connect a peripheral device to the interface port, this will not generate an error message.

Handshake

The balance/scale interface (Sartorius Balance Interface = SBI) has transmit and receive buffers. You can define the handshake parameter in the Setup menu:

- Hardware handshake (CTS/DTR)
- Software handshake (XON, XOFF)


Hardware Handshake

With a 4-wire interface, 1 more character can be transmitted after CTS (Clear to Send).

Software Handshake


The software handshake is controlled via XON and XOFF. When a device is switched on, XON must be transmitted to enable any connected device to communicate.

Data Output by Print Command

The print command can be transmitted by pressing  or by a software command (Esc P).

Automatic Data Output

Activate the "auto print" operating mode to have data output to the interface port without a print command. You can have data output automatically at defined display update intervals, with or without the stability parameter. The length of a print interval depends on the operating menu settings for *AMBIENT* (ambient conditions) (menu code 1. 1. 1. x) and *AUT. CYCL.* (time-dependent autom. printing; menu code 1. 6. 3. x).

If you activate the auto print setting, data will be transmitted immediately the moment you turn on the balance/scale. In the operating menu, you can define whether automatic printing can be stopped by pressing .

Pin Assignment Chart

Female Interface Connector:

25-contact D-Submini (DB25S) with screw lock hardware

Male connector used (please use connectors with the same specifications):

25-contact D-Submini (DB25S) with integrated shielded cable clamp assembly (Amp 826 985-1C) and fastening screws (Amp 164 868-1)

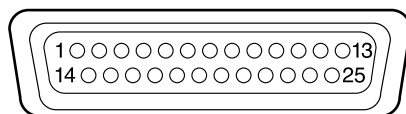
⚠ Warning When Using Pre-wired RS-232 Connecting Cables:

The pin assignments in RS-232 cables purchased from other manufacturers may be incompatible with Sartorius weighing instruments. Be sure to check the pin assignments against the chart below before connecting the cable, and disconnect any lines identified differently from those specified by Sartorius (e.g., pin 6).

Failure to do so may damage or even completely ruin your balance/scale and/or peripheral device(s).

Pin assignments:

- Pin 1: Signal ground
- Pin 2: Data output (TxD)
- Pin 3: Data input (Rx/D)
- Pin 4: Internal ground (GND)
- Pin 5: Clear to send (CTS)
- Pin 6: Not connected
- Pin 7: Internal ground (GND)
- Pin 8: Internal ground (GND)
- Pin 9: Not connected
- Pin 10: Not connected
- Pin 11: +12 V (Power supply for Sartorius printer)
- Pin 12: Reset _ Out *)
- Pin 13: +5 V
- Pin 14: Internal ground (GND)
- Pin 15: Universal remote switch
- Pin 16: Not connected
- Pin 17: Not connected
- Pin 18: Not connected
- Pin 19: Not connected
- Pin 20: Data terminal ready (DTR)
- Pin 21: Not connected
- Pin 22: Not connected
- Pin 23: Not connected
- Pin 24: Not connected
- Pin 25: +5 V



For remote switch

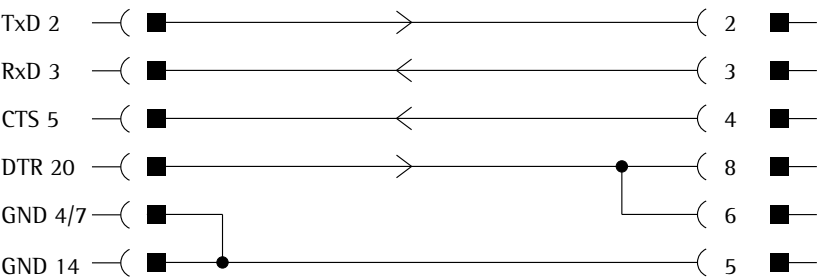
*) = Hardware restart

Cabling Diagram

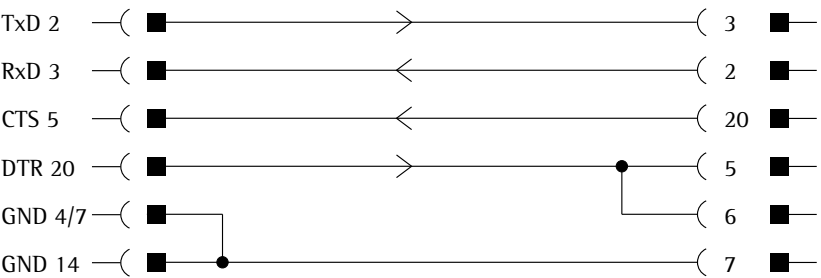
For connecting a computer or other peripheral device to the balance/scale using the RS-232C/V24 protocol and cable lengths of up to 15 m (approx. 50 ft).

Important: do not connect any other pins to the cable connector of the balance/scale.

Balance/scale 25-pin male connector	Computer, 9-contact female connector
---	--







Balance/scale 25-pin male connector	Computer, 25-contact female connector
---	---



Cable type: AWG 24 specification

Troubleshooting Guide

Error codes are shown on the main display for approx. 2 seconds. The program then returns automatically to the previous mode.

Display	Cause	Solution
No segments appear on the display	No AC power is available The power supply is not plugged in	Check the AC power supply Plug in the power supply
HIGH	The load exceeds the balance/scale capacity	Unload the balance/scale
LOW or ERR 54	Something is touching the weighing pan	Move the object that is touching the weighing pan
APP.ERR.	Cannot store data: Load on weighing pan too light or no sample on pan while application is active	Increase load
DIS.ERR.	Data output not compatible with output format	Change the configuration in the operating menu
PRT.ERR.	Interface port for printer output is blocked	Reset the menu factory settings, or Contact your local Sartorius Service Center
ERR 02	Calibration parameter not met; e.g.: – balance/scale not tared – load on weighing pan	Calibrate only when zero is displayed – Press  to tare the balance/scale – Unload the balance/scale
ERR 10	The  key is blocked when there is data in the second tare memory (net-total); only 1 tare function can be used at a time	Press  to clear the tare memory and release the tare key
ERR 11	Tare memory not allowed	Press 
The weight readout changes constantly	Unstable ambient conditions (excessive vibration or draft) at the place of installation A foreign object is caught between weighing pan and balance/scale housing	Set up the balance/scale in another area Remove the foreign object
The weight readout is obviously wrong	The balance/scale was not calibrated/adjusted Balance/scale not tared before weighing	Calibrate/adjust the balance/scale Tare or zero the balance/scale before weighing

If any other errors occur, contact your local Sartorius Service Center.

Contact information: Please point your Internet browser to: <http://www.sartorius.com>

Care and Maintenance

Service

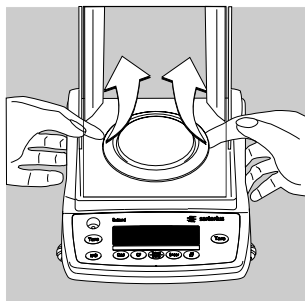
On request, Sartorius can offer you an individual service contract.

Repairs

Repair work must be performed by trained service technicians. Any attempt by untrained persons to perform repairs may result in considerable hazards for the user.

Cleaning

- Unplug the AC adapter from the wall outlet (mains supply). If you have an interface cable connected to the balance/scale port, unplug it from the port.
- The plastic upper and lower segments of the balance/scale housing are protected by a special coating, so that they will not be damaged by the solvents usually used for cleaning.
- ⚠ Do not use solvents or aggressive cleaning agents on the following parts: keypad overlay, power jack, data interface
- After cleaning, wipe down the balance/scale with a soft, dry cloth.



On analytical balances remove and clean the weighing pan as follows:

- Reach beneath the shield disk and lift it carefully, together with the pan support, to avoid damaging the weighing system.
- ⚠ Make sure that no liquid enters the balance/scale housing.

Cleaning Stainless Steel Surfaces

Clean all stainless steel parts regularly. Remove the stainless steel weighing pan and thoroughly clean it separately. Use a damp cloth or sponge to clean stainless steel parts on the balance/scale. You can use any household cleaning agent that is suitable for use on stainless steel. Clean stainless steel surfaces only by wiping them down. Then rinse the equipment thoroughly, making sure to remove all residues. Afterwards, allow the equipment to dry. If desired, you can apply oil to the cleaned surfaces as additional protection.

Recycling

Safety Inspection

If there is any indication that safe operation of the balance/scale is no longer warranted:

- Turn off the power and disconnect the equipment from AC power immediately.
- > Lock the equipment in a secure place to ensure that it cannot be used for the time being.

Notify your nearest Sartorius Service Center. Repair work must be performed by trained service technicians.

We recommend having the power supply inspected by a certified electrician at regular intervals, according to the following checklist:

- Insulating resistance: > 7 megaohms measured with a constant voltage of at least 500 volts at a 500 K-ohm load
- Leakage current: < 0.05 mA measured with a properly calibrated multimeter

If you no longer need the packaging after successful installation of the equipment, you should return it for recycling. The packaging is made from environmentally friendly materials and is a valuable source of secondary raw material. Batteries are hazardous waste and must be disposed of separately. Please deposit empty batteries in the collection boxes set up in your area for this purpose. On request, Sartorius can provide GRS boxes for collecting used batteries. (GRS stands for "Gemeinsames Rücknahme System," a German organization for battery disposal.*)



Contact your local waste disposal authorities if you wish to scrap the equipment. Sartorius AG in Goettingen will take back equipment and packaging for disposal in accordance with the applicable laws.* If you set up the equipment in a country other than Germany, please contact your local waste disposal authorities for information on similar services.

* This service is offered only within Germany

Overview

Specifications

Specifications

Built-in motorized calibration weight		All models with the designation suffix ED...-CW, GK..., GW.... or with a readability of 0.0001 g and all verified models
AC power source/power requirements, voltage, frequency		AC adapter 230 V or 115 25 V, +15% to – 20%, 48–60 Hz
Power consumption	VA	maximum 16; typical 8 (STNG6)
Approx. hours of operation with the YRB05Z rechargeable battery pack (backlighting on)	h	35

Ambient Conditions

The specifications given here are ensured under the following ambient conditions:

Operating temperature range	+10 to +30°C (273 to 303 K, 50 to 86°F)
Allowable ambient operating temperature	+5 to +40°C (41 to 104°F)
Proper functioning is ensured within an ambient operating temperature range of 5 to 40°C (41 to 104°F).	

Model-specific Specifications

Model		ED224S	ED124S	GK1203	GK703/ GK703-ST	GK303
Weighing capacity		220 g	120 g	1200 ct	700 ct	300 ct
Readability		0.0001 g	0.0001 g	0.001 ct	0.001 ct	0.001 ct
Tare range (subtractive)		220 g	120 g	1200 ct	700 ct	300 ct
Repeatability (std. deviation)	≤±	0.0001 g	0.0001 g	0.001 ct	0.001 ct	0.001 ct
Linearity	≤±	0.0002 g	0.0002 g	0.002 ct	0.002 ct	0.002 ct
Response time (average)	s	2.5	2.5	1.5	1.5	1.5
Sensitivity drift within +10 to +30°C	≤±/K	2 · 10 ⁻⁶	2 · 10 ⁻⁶	2 · 10 ⁻⁶	2 · 10 ⁻⁶	2 · 10 ⁻⁶
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels; display update: 0.1–0.4 (depends on filter level selected)				
External calibration weight (of at least accuracy class...)	g	200 (E2)	100 (E2)	200 (E2)	100 (F2)	50 (F2)
Net weight, approx.:	kg	4.8	4.8	4.7	4.7	4.7
Weighing pan size	mm	90 Ø	90 Ø	90 Ø	90 Ø/35 Ø	90 Ø
Whg. chamber height	mm	230	230	160	160/38	160
Dimensions (WxDxH)	mm	230 × 303 × 330		230 × 303 × 260 Model GK703-ST: 230 × 303 × 138		

Model		ED623S| ED623S-CW	ED423S| ED423S-CW| ED423S-DS	ED323S| ED323S-CW| ED323S-DS	ED153| ED153-CW| ED153-DS	GK2202
Weighing capacity		620 g	420 g	320 g	150 g	2200 ct
Readability		0.001 g	0.001 g	0.001 g	0.001 g	0.005 ct
Tare range (subtractive)		620 g	420 g	320 g	150 g	2200 ct
Repeatability (std. deviation) $\leq \pm$		0.001 g	0.001 g	0.001 g	0.001 g	0.005 ct
Linearity $\leq \pm$		0.002 g	0.002 g	0.002 g	0.002 g	0.01 ct
Response time (average)	s	1	1	11	1.3	1
Sensitivity drift within +10 to +30°C	$\leq \pm/K$	$2 \cdot 10^{-6}$	$2 \cdot 10^{-6}$	$2 \cdot 10^{-6}$	$3.3 \cdot 10^{-6}$	$2 \cdot 10^{-6}$
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels; display update: 0.05–0.4 (depends on filter level selected)				
External calibration weight (of at least accuracy class...)	g	500 (E2)	200 (E2)	200 (F1)	100 (F1)	
Net weight, approx:	kg	3.2|3.6	3.2|3.6|4.4	3.2|3.6|4.4	2.6|3.0|1	4.4
Weighing pan size	mm	115 Ø	115 Ø	115 Ø	115 Ø	115 Ø
Dimensions (WxDxH)	mm	230 × 303 × 136	230 × 303 × 136 ED...-DS: 230 × 303 × 330			230 × 303 × 260

Model		ED6202S | GW6202 | ED6202S-CW	ED4202S | ED4202S -CW	ED3202S | GW3202 | ED3202S-CW	ED2202S | ED2202S -CW	ED822 | ED822 -CW
Weighing capacity	g	6200	4200	3200	2200	820
Readability	g	0.01	0.01	0.01	0.01	0.01
Tare range (subtractive)	g	6200	4200	3200	2200	820
Repeatability (std. deviation) $\leq \pm g$		0.01	0.01	0.01	0.01	0.01
Linearity $\leq \pm g$		0.02	0.02	0.02	0.02	0.02
Stabilization time (typical)	s	1.1	1.1	1.1	1.1	1.0
Sensitivity drift within +10 to +30°C	$\leq \pm/K$	$2 \cdot 10^{-6}$	$2 \cdot 10^{-6}$	$2 \cdot 10^{-6}$	$2 \cdot 10^{-6}$	$5 \cdot 10^{-6}$
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels; display update: 0.05–0.4 (depends on filter level selected)				
External calibration weight (of at least accuracy class...)	g	5000 (E2)	2000 (E2)	2000 (F1)	2000 (F1)	500 (F2)
Net weight, approx:	kg	3.1|3.1|3.5	3.1|3.1|3.5	3.1|3.1|3.5	3.1|3.1|3.5	2|2|2.6
Weighing pan size	mm	180 × 180	180 × 180	180 × 180	180 × 180	150 Ø
Dimensions (WxDxH)	mm	230 × 303 × 91				230×303×87

Model		ED8201 | ED8201-CW	GW7201	ED5201 | ED5201-CW	ED2201 | ED2201-CW
Weighing capacity	g	8200	7200	5200	2200
Readability	g	0.1	0.1	0.1	0.1
Tare range (subtractive)	g	8200	7200	5200	2200
Repeatability (std. deviation)	≤±g	0.1	0.1	0.1	0.1
Linearity	≤±g	0.1	0.1	0.1	0.1
Response time (average)	s	1	1	1	1
Sensitivity drift within +10 to +30°C	≤±/K	10 · 10 ⁻⁶			
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels; display update: 0.05–0.4 (depends on filter level selected)			
External calibration weight (of at least accuracy class...)	g	5000 (F2)	5000 (F2)	5000 (F2)	2000 (F2)
Net weight, approx.:	kg	2.7 | 3.5	2.7	2.7 | 3.5	2.7 | 3.5
Weighing pan size	mm	180 × 180			
Dimensions (WxDxH)	mm	230 × 303 × 91			

Accessories

External calibration weights:

For model	Accuracy class	Weight in grams	Order no.:
ED423S/...-DS	E2	200	YCW5228-00
ED623S	E2	500	YCW5528-00
ED4202S	E2	2000	YCW6228-00
ED6202S, GW6202	E2	5000	YCW6528-00
ED153S/...-DS	F1	100	YCW5138-00
ED323S/...-DS	F1	200	YCW5238-00
ED3202S, ED2202S	F1	2000	YCW6238-00
ED822	F2	500	YCW5548-00
ED2201	F2	2000	YCW6248-00
ED8201, ED5201	F2	5000	YCW6548-00
or alternatively	± 25 mg	5000	YSS653-00

Product

Data printer

with date, time, statistics
evaluation, transaction
counter functions and LCD

Order No.

YDP03-OCE

Product

Density determination kit¹⁾

– for ED224S, ED124S

YDK01LP

Remote display ¹⁾, reflective
(for connection to
data interface port)

YRD02Z

Standard Operating Procedure

optimum use of your balance/scale
in quality-management systems

YSL01E

External rechargeable battery pack

YRB05Z

With battery-level indicator (LED);
can be recharged using the AC
adapter (charge time for completely
discharged battery pack: 15 hours);
see “Specifications” for hours of operation.

To recharge the battery pack:

Unplug the AC adapter from the balance/scale
and plug it into the battery pack

Industrial AC adapter, model ING2,
protection rating: IP65 in accordance
with EN 60529

– for 230 V

69 71899

– for 120 V

69 71500

Data cable

– for connecting a computer
with a USB port

YCC01-USBM2

– for computer connection,
25-pin

7357312

– for computer connection, 9-pin

7357314

SartoConnect ¹⁾,

data transfer software for direct
transmission of weight values
to another program (e.g., MS Excel)

– with RS-232C

connecting cable, length:

1 m (~20 in)

YSC01L

– with RS-232C

connecting cable, length:

5 m (~16 ft)

YSC01L5

– with RS-232C

connecting cable, length:

15 m (~50 ft)

YSC01L15

Adapter cable




6965619

from D-Sub 25-pin male

connector to D-Sub 9-contact

female connector; length: 0.25 m

¹⁾ Not for verified models

Universal remote control switch	Order No.
for remote control of the following functions:	
 ,  ,  or a function key (see “Configuration” for details):	
Foot switch with T-connector	YFS01
Hand switch with T-connector	YHS02
T-connector	YTC01
Note:	
The T-connector is not intended for connecting multiple intelligent peripheral devices, such as PCs OR YDP03-OCE printers.	
Ionizing blower for eliminating static electricity	
– 220 V	YIB01-ODR
– 110 V	YIB01-OUR
Stat-Pen anti-static device for eliminating electrostatic charges on samples and containers (100 V to 230 V, 50/60 Hz)	YSTP01
Anti-vibration balance/scale table	
– for precise, reliable weighing operations	YWT01
– made of cast stone with shock absorbers	YWT03
Bracket for wall mounting	YWT04
Gem trays/Weighing bowls	
– 300 ml, weight: 86 g, stainless steel	6407
– 1000 ml, wt.: 240 g, stainless steel	641211
– 500 ml	641212
– 300 ml, wt.: 22 g, aluminum	69641304
– 110 ml, 90 mm Ø, aluminum	69GP0003
– 270 ml, wt.: 62 g, 137 mm Ø, stainless steel	YWP03G
– 62 mm Ø, stainless steel	6910848
– 85 ml, 70 mm Ø, aluminum	YWP06G
– 180 ml, 90 mm Ø, aluminum	YWP05G
– 174 mm Ø, stainless steel	YWP04G



Declaration of Conformity to Council Directives 89/336/EEC and 73/23/EEC (amended by Directive 93/68/EEC)

The electronic precision weighing instrument of the series
ED/GK/GW/XX.....-.....

meets the applicable requirements of the test standards listed below, in conjunction with the associated power supplies, auxiliary peripheral devices and installation equipment listed in Annex A2 (see Annex A1 for a technical description and a list of the individual versions).

1. Electromagnetic Compatibility

1.1 Source for 89/336/EEC: Official Journal of the European Communities, No. 2004/C98/05

EN 61326 Electrical equipment for measurement, control and laboratory use
EMC requirements

Limitation of emissions: Residential areas, Class B

Defined immunity to interference: Industrial areas, continuous unmonitored operation

2. Safety of Electrical Equipment

2.1 Source for 73/23/EEC: Official Journal of the European Communities, No. 2004/C103/02

EN 61010 Safety requirements for electrical equipment for
measurement, control and laboratory use

Part 1: General requirements

EN 60950-1 Information technology equipment

Safety

Part 1: General requirements

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